

7/29/2016

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Richland

2800 George Washington Way

Richland, WA 99352

Tel: (509)375-3131

TestAmerica Job ID: 300-3529-1

TestAmerica Sample Delivery Group: WC1279

Client Project/Site: F16-042

For:


CH2M Hill Plateau Remediation Company

PO BOX 1600

Mail Stop R3-50

Richland, Washington 99352

Attn: CPP Sample Management



Authorized for release by:

7/29/2016 4:08:56 PM

Steven Campbell, Project Mgmt. Assistant

steven.campbell@testamericainc.com

Designee for

Whitney Ritari, Project Manager I

(509)375-3131 ext164

whitney.ritari@testamericainc.com

LINKS

Review your project
results through

TotalAccess

Have a Question?



Visit us at:

www.testamericainc.com

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed in this package. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager, or a designee as verified by the attached signature.

The laboratory is accredited to EPA 7196A in Solid and Chemical Materials, per Washington State Department of Ecology this is approved for non-discharge water samples. The sample/ sample duplicate RPD agreement is not applicable if one or both results are less than five times the MDL.

Table of Contents

| | |
|----------------------------------|----|
| Cover Page | 1 |
| Table of Contents | 2 |
| Definitions/Glossary | 3 |
| Case Narrative | 4 |
| Chain of Custody | 5 |
| Detection Summary | 8 |
| Client Sample Results | 9 |
| QC Sample Results | 10 |
| QC Association Summary | 13 |
| Lab Chronicle | 14 |
| Method Summary | 16 |
| Sample Summary | 17 |
| Receipt Checklists | 18 |

Definitions/Glossary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-042

TestAmerica Job ID: 300-3529-1
SDG: WC1279

Qualifiers

HPLC/IC

| Qualifier | Qualifier Description |
|-----------|--|
| D | The reported value is from a dilution. |
| U | Analyzed for but not detected. |
| B | Estimated result. Result is less than the RL, but greater than MDL |

General Chemistry

| Qualifier | Qualifier Description |
|-----------|--|
| B | Estimated result. Result is less than the RL, but greater than MDL |
| U | Analyzed for but not detected. |

Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|----------------|---|
| α | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CFL | Contains Free Liquid |
| CNF | Contains no Free Liquid |
| DER | Duplicate error ratio (normalized absolute difference) |
| Dil Fac | Dilution Factor |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision level concentration |
| MDA | Minimum detectable activity |
| EDL | Estimated Detection Limit |
| MDC | Minimum detectable concentration |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| NC | Not Calculated |
| ND | Not detected at the reporting limit (or MDL or EDL if shown) |
| PQL | Practical Quantitation Limit |
| QC | Quality Control |
| RER | Relative error ratio |
| RL | Reporting Limit or Requested Limit (Radiochemistry) |
| RPD | Relative Percent Difference, a measure of the relative difference between two points |
| TEF | Toxicity Equivalent Factor (Dioxin) |
| TEQ | Toxicity Equivalent Quotient (Dioxin) |

Case Narrative

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-042

TestAmerica Job ID: 300-3529-1
SDG: WC1279

Job ID: 300-3529-1

Laboratory: TestAmerica Richland

Narrative**Job Narrative**
300-3529-1**Comments**

No additional comments.

Receipt

The samples were received on 7/20/2016 2:50 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 9.9° C.

HPLC/IC

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

300-3529 COC



| | | | | | | | |
|--|--|--|---------------------------------|--|---|----------------|-------------|
| CH2M Hill Plateau Remediation Company | | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | | F16-042-033 | PAGE 1 OF 1 |
| COLLECTOR Ed Kauer CHPRC | COMPANY CONTACT TODAK, D | TELEPHONE NO. 376-6427 | PROJECT COORDINATOR TODAK, D | PRICE CODE 7H | DATA TURNAROUND 30 Days / 30 Days | | |
| SAMPLING LOCATION C9400, POST DEVELOPMENT | PROJECT DESIGNATION 100-NR-2 Drilling - Water | FIELD LOGBOOK NO. HNF-N-645 | ACTUAL SAMPLE DEPTH 91.16' | SAF NO. F16-042 | AIR QUALITY <input type="checkbox"/> | | |
| ICE CHEST NO. | | | COA 304070 | METHOD OF SHIPMENT GOVERNMENT VEHICLE | ORIGINAL | | |
| SHIPPED TO TestAmerica Incorporated, Richard | OFFSITE PROPERTY NO. | | BILL OF LADING/AIR BILL NO. | | | | |
| MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WT=Wipe X=Other | POSSIBLE SAMPLE HAZARDS/REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/ATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1, NA | PRESERVATION Cool <=6C | HOLDING TIME 24 Hours | TYPE OF CONTAINER ag | NO. OF CONTAINER(S) 1 | VOLUME 60mL | |
| SPECIAL HANDLING AND/OR STORAGE | SAMPLE ANALYSIS | 7196, CRG, COMMON; | | | | | |
| SAMPLE NO. | MATRIX* | SAMPLE DATE | SAMPLE TIME | | | | |
| B35VJ9 | WATER | JUL 20 2016 | 1108 | | | | |

FILTER

3529
w61277

CHAIN OF POSSESSION

SIGN/PRINT NAMES

SPECIAL INSTRUCTIONS

FILTER

FILTER

| | | | |
|---|-------------------------------|---|-------------------------------|
| RELINQUISHED BY/REMOVED FROM Ed Kauer CHPRC | DATE/TIME JUL 20 2016 1220 | RECEIVED BY/STORED IN J. Bock, TARI CHPRC | DATE/TIME JUL 20 2016 1220 |
| RELINQUISHED BY/REMOVED FROM LARRY WEAVER CHPRC | DATE/TIME JUL 20 2016 1450 | RECEIVED BY/STORED IN J. Bock, TARI CHPRC | DATE/TIME JUL 20 2016 1450 |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME |

| | | |
|--------------------------|-----------------|-----------|
| LABORATORY SECTION | RECEIVED BY | TITLE |
| FINAL SAMPLE DISPOSITION | DISPOSAL METHOD | DATE/TIME |

PRINTED ON 5/23/2016

FSR ID = FSR32405

TRVL NUM = TRVL-16-151

A-6003-618 (REV 2)

| CH2MHill Plateau Remediation Company | | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | | | F16-042-029 | PAGE 1 OF 1 |
|---|---|---|--|-------------------------------|--|---|---|
| COLLECTOR Ed Kaer CHPRC | COMPANY CONTACT TODAK, D | TELEPHONE NO. 376-6427 | PROJECT COORDINATOR TODAK, D | PRICE CODE 7H | DATA TURNAROUND 30 Days / 30 Days | | |
| SAMPLING LOCATION C9400, POST DEVELOPMENT | PROJECT DESIGNATION 100-NR-2 Drilling - Water | FIELD LOGBOOK NO. HNF-N-645 5-128 | ACTUAL SAMPLE DEPTH 91.16' | SAF NO. F16-042 | AIR QUALITY <input type="checkbox"/> | METHOD OF SHIPMENT GOVERNMENT VEHICLE | ORIGINAL |
| ICE CHEST NO. | | | | | | | |
| SHIPPED TO TestAmerica Incorporated, Richland | OFFSITE PROPERTY NO. N/A | BILL OF LADING/AIR BILL NO. N/A | | | | | |
| MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Sediment SF=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other | POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/JATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. NA | PRESERVATION Cool <=6C | HOLDING TIME 48 Hours | TYPE OF CONTAINER P | NO. OF CONTAINER(S) 1 | VOLUME 500mL | SEE ITEM (1) IN SPECIAL INSTRUCTIONS |
| SPECIAL HANDLING AND/OR STORAGE | | | | | | | |
| SAMPLE NO. B35VJ5 | MATRIX* WATER | SAMPLE DATE JUL 20 2016 | SAMPLE TIME 1108 | | | | |

B529
W C 1279

| CHAIN OF POSSESSION | | SIGN/ PRINT NAMES | | SPECIAL INSTRUCTIONS | |
|--|--------------------------------------|---|--------------------------------------|--|--|
| RELINQUISHED BY/REMOVED FROM Ed Kaer | DATE/TIME JUL 20 2016 1220 | RECEIVED BY/STORED IN J. BOCK, TARI | DATE/TIME JUL 20 2016 1450 | (1) 300.0 ANIONS_IC: COMMON {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Sulfate}; 300.0 ANIONS_IC: COMMON (Add-on) {Phosphorus in phosphate}; | |
| RELINQUISHED BY/REMOVED FROM CHPRC | DATE/TIME JUL 20 2016 1450 | RECEIVED BY/STORED IN J. BOCK, TARI | DATE/TIME JUL 20 2016 1450 | | |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME | | |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME | | |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME | | |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME | | |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME | | |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME | | |
| RELINQUISHED BY/REMOVED FROM | DATE/TIME | RECEIVED BY/STORED IN | DATE/TIME | | |
| LABORATORY SECTION | RECEIVED BY | TITLE | | | |
| FINAL SAMPLE DISPOSITION | DISPOSAL METHOD | DATE/TIME | | | |

PRINTED ON 5/23/2016

FSR ID = FSR32405

TRVL NUM = TRVL-16-151

A-6003-618 (REV 2)

7/29/2016

Detection Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-042

TestAmerica Job ID: 300-3529-1
SDG: WC1279

Client Sample ID: B35VJ4

Lab Sample ID: 300-3529-1

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---------|--------|-----------|--------|--------|------|---------|---|--------|-----------|
| Cr (VI) | 0.0019 | B | 0.0040 | 0.0015 | mg/L | 1 | | 7196A | Total/NA |

Client Sample ID: B35VJ9

Lab Sample ID: 300-3529-2

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---------|--------|-----------|--------|--------|------|---------|---|--------|-----------|
| Cr (VI) | 0.0033 | B | 0.0040 | 0.0015 | mg/L | 1 | | 7196A | Total/NA |

Client Sample ID: B35VJ5

Lab Sample ID: 300-3529-3

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---------------------|--------|-----------|-------|-------|------|---------|---|--------|-----------|
| Chloride | 22 | D | 0.40 | 0.20 | mg/L | 2 | | 300.0 | Total/NA |
| Nitrate as N | 6.3 | D | 0.056 | 0.028 | mg/L | 2 | | 300.0 | Total/NA |
| Fluoride | 0.44 | D | 0.10 | 0.050 | mg/L | 2 | | 300.0 | Total/NA |
| Orthophosphate as P | 0.11 | B D | 0.16 | 0.082 | mg/L | 2 | | 300.0 | Total/NA |
| Sulfate | 100 | D | 5.0 | 2.5 | mg/L | 20 | | 300.0 | Total/NA |

This Detection Summary does not include radiochemical test results.

TestAmerica Richland

Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-042

TestAmerica Job ID: 300-3529-1
SDG: WC1279

Client Sample ID: B35VJ4

Date Collected: 07/20/16 11:08

Date Received: 07/20/16 14:50

Lab Sample ID: 300-3529-1

Matrix: Water

General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---------|--------|-----------|--------|--------|------|---|----------|----------------|---------|
| Cr (VI) | 0.0019 | B | 0.0040 | 0.0015 | mg/L | | | 07/20/16 18:16 | 1 |

Client Sample ID: B35VJ9

Date Collected: 07/20/16 11:08

Date Received: 07/20/16 14:50

Lab Sample ID: 300-3529-2

Matrix: Water

General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---------|--------|-----------|--------|--------|------|---|----------|----------------|---------|
| Cr (VI) | 0.0033 | B | 0.0040 | 0.0015 | mg/L | | | 07/20/16 18:16 | 1 |

Client Sample ID: B35VJ5

Date Collected: 07/20/16 11:08

Date Received: 07/20/16 14:50

Lab Sample ID: 300-3529-3

Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---------------------|--------|-----------|-------|-------|------|---|----------|----------------|---------|
| Chloride | 22 | D | 0.40 | 0.20 | mg/L | | | 07/20/16 18:58 | 2 |
| Nitrate as N | 6.3 | D | 0.056 | 0.028 | mg/L | | | 07/20/16 18:58 | 2 |
| Fluoride | 0.44 | D | 0.10 | 0.050 | mg/L | | | 07/20/16 18:58 | 2 |
| Nitrite as N | 0.038 | U D | 0.076 | 0.038 | mg/L | | | 07/20/16 18:58 | 2 |
| Orthophosphate as P | 0.11 | B D | 0.16 | 0.082 | mg/L | | | 07/20/16 18:58 | 2 |
| Sulfate | 100 | D | 5.0 | 2.5 | mg/L | | | 07/20/16 22:16 | 20 |

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-042

TestAmerica Job ID: 300-3529-1
SDG: WC1279

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 300-4964/5

Matrix: Water

Analysis Batch: 4964

Client Sample ID: Method Blank

Prep Type: Total/NA

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---------------------|--------------|-----------------|-------|-------|------|---|----------|----------------|---------|
| Nitrate as N | 0.014 | U | 0.028 | 0.014 | mg/L | | | 07/20/16 18:28 | 1 |
| Nitrite as N | 0.019 | U | 0.038 | 0.019 | mg/L | | | 07/20/16 18:28 | 1 |
| Orthophosphate as P | 0.041 | U | 0.082 | 0.041 | mg/L | | | 07/20/16 18:28 | 1 |

Lab Sample ID: LCS 300-4964/6

Matrix: Water

Analysis Batch: 4964

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---------------------|----------------|---------------|------------------|------|---|------|-----------------|
| Nitrate as N | 2.26 | 2.29 | | mg/L | | 101 | 80 - 120 |
| Nitrite as N | 3.04 | 3.11 | | mg/L | | 102 | 80 - 120 |
| Orthophosphate as P | 6.53 | 6.51 | | mg/L | | 100 | 80 - 120 |

Lab Sample ID: 300-3529-3 MS

Matrix: Water

Analysis Batch: 4964

Client Sample ID: B35VJ5

Prep Type: Total/NA

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---------------------|------------------|---------------------|----------------|--------------|-----------------|------|---|------|-----------------|
| Nitrate as N | 6.3 | D | 0.452 | 6.69 | D | mg/L | | 89 | 75 - 125 |
| Nitrite as N | 0.038 | U D | 0.609 | 0.533 | D | mg/L | | 88 | 75 - 125 |
| Orthophosphate as P | 0.11 | B D | 1.31 | 1.15 | D | mg/L | | 80 | 75 - 125 |

Lab Sample ID: 300-3529-3 DU

Matrix: Water

Analysis Batch: 4964

Client Sample ID: B35VJ5

Prep Type: Total/NA

| Analyte | Sample Result | Sample Qualifier | DU Result | DU Qualifier | Unit | D | RPD | RPD Limit |
|---------------------|------------------|---------------------|--------------|-----------------|------|---|-----|--------------|
| Nitrate as N | 6.3 | D | 6.21 | D | mg/L | | 1 | 20 |
| Nitrite as N | 0.038 | U D | 0.038 | U D | mg/L | | NC | 20 |
| Orthophosphate as P | 0.11 | B D | 0.108 | B D | mg/L | | 2 | 20 |

Lab Sample ID: MB 300-4965/5

Matrix: Water

Analysis Batch: 4965

Client Sample ID: Method Blank

Prep Type: Total/NA

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|----------|--------------|-----------------|-------|-------|------|---|----------|----------------|---------|
| Chloride | 0.10 | U | 0.20 | 0.10 | mg/L | | | 07/20/16 18:28 | 1 |
| Fluoride | 0.025 | U | 0.050 | 0.025 | mg/L | | | 07/20/16 18:28 | 1 |
| Sulfate | 0.13 | U | 0.25 | 0.13 | mg/L | | | 07/20/16 18:28 | 1 |

Lab Sample ID: LCS 300-4965/6

Matrix: Water

Analysis Batch: 4965

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|----------|----------------|---------------|------------------|------|---|------|-----------------|
| Chloride | 16.0 | 16.0 | | mg/L | | 100 | 80 - 120 |
| Fluoride | 4.00 | 3.99 | | mg/L | | 100 | 80 - 120 |
| Sulfate | 20.0 | 19.9 | | mg/L | | 100 | 80 - 120 |

TestAmerica Richland

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-042

TestAmerica Job ID: 300-3529-1
SDG: WC1279

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 300-3529-3 MS

Matrix: Water

Analysis Batch: 4965

Client Sample ID: B35VJ5

Prep Type: Total/NA

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits |
|----------|---------------|------------------|-------------|-----------|--------------|------|---|------|--------------|
| Chloride | 22 | D | 3.20 | 25.3 | D | mg/L | | 94 | 75 - 125 |
| Fluoride | 0.44 | D | 0.800 | 1.21 | D | mg/L | | 97 | 75 - 125 |

Lab Sample ID: 300-3529-3 MS

Matrix: Water

Analysis Batch: 4965

Client Sample ID: B35VJ5

Prep Type: Total/NA

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---------|---------------|------------------|-------------|-----------|--------------|------|---|------|--------------|
| Sulfate | 100 | D | 40.0 | 137 | D | mg/L | | 88 | 75 - 125 |

Lab Sample ID: 300-3529-3 DU

Matrix: Water

Analysis Batch: 4965

Client Sample ID: B35VJ5

Prep Type: Total/NA

| Analyte | Sample Result | Sample Qualifier | DU Result | DU Qualifier | Unit | D | RPD | RPD Limit |
|----------|---------------|------------------|-----------|--------------|------|---|-----|-----------|
| Chloride | 22 | D | 22.1 | D | mg/L | | 1 | 20 |
| Fluoride | 0.44 | D | 0.431 | D | mg/L | | 0.9 | 20 |

Lab Sample ID: 300-3529-3 DU

Matrix: Water

Analysis Batch: 4965

Client Sample ID: B35VJ5

Prep Type: Total/NA

| Analyte | Sample Result | Sample Qualifier | DU Result | DU Qualifier | Unit | D | RPD | RPD Limit |
|---------|---------------|------------------|-----------|--------------|------|---|-----|-----------|
| Sulfate | 100 | D | 101 | D | mg/L | | 2 | 20 |

Method: 7196A - Chromium, Hexavalent

Lab Sample ID: MB 300-5013/3

Matrix: Water

Analysis Batch: 5013

Client Sample ID: Method Blank

Prep Type: Total/NA

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---------|-----------|--------------|--------|--------|------|---|----------|----------------|---------|
| Cr (VI) | 0.0015 | U | 0.0040 | 0.0015 | mg/L | | | 07/20/16 18:07 | 1 |

Lab Sample ID: LCS 300-5013/4

Matrix: Water

Analysis Batch: 5013

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---------|-------------|------------|---------------|------|---|------|--------------|
| Cr (VI) | 0.250 | 0.254 | | mg/L | | 101 | 80 - 120 |

Lab Sample ID: 300-3526-A-1 MS

Matrix: Water

Analysis Batch: 5013

Client Sample ID: Matrix Spike

Prep Type: Total/NA

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---------|---------------|------------------|-------------|-----------|--------------|------|---|------|--------------|
| Cr (VI) | 0.017 | | 0.0500 | 0.0672 | | mg/L | | 101 | 75 - 125 |

TestAmerica Richland

QC Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-042

TestAmerica Job ID: 300-3529-1
SDG: WC1279

Method: 7196A - Chromium, Hexavalent (Continued)

Lab Sample ID: 300-3526-A-1 DU
Matrix: Water
Analysis Batch: 5013

Client Sample ID: Duplicate
Prep Type: Total/NA

| Analyte | Sample Result | Sample Qualifier | DU Result | DU Qualifier | Unit | D | RPD | Limit |
|---------|---------------|------------------|-----------|--------------|------|---|-----|-------|
| Cr (VI) | 0.017 | | 0.0169 | | mg/L | — | 0 | 20 |

QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-042

TestAmerica Job ID: 300-3529-1
SDG: WC1279

HPLC/IC

Analysis Batch: 4964

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|----------------|--------------------|-----------|--------|--------|------------|
| 300-3529-3 | B35VJ5 | Total/NA | Water | 300.0 | |
| MB 300-4964/5 | Method Blank | Total/NA | Water | 300.0 | |
| LCS 300-4964/6 | Lab Control Sample | Total/NA | Water | 300.0 | |
| 300-3529-3 MS | B35VJ5 | Total/NA | Water | 300.0 | |
| 300-3529-3 DU | B35VJ5 | Total/NA | Water | 300.0 | |

Analysis Batch: 4965

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|----------------|--------------------|-----------|--------|--------|------------|
| 300-3529-3 | B35VJ5 | Total/NA | Water | 300.0 | |
| 300-3529-3 | B35VJ5 | Total/NA | Water | 300.0 | |
| MB 300-4965/5 | Method Blank | Total/NA | Water | 300.0 | |
| LCS 300-4965/6 | Lab Control Sample | Total/NA | Water | 300.0 | |
| 300-3529-3 MS | B35VJ5 | Total/NA | Water | 300.0 | |
| 300-3529-3 MS | B35VJ5 | Total/NA | Water | 300.0 | |
| 300-3529-3 DU | B35VJ5 | Total/NA | Water | 300.0 | |
| 300-3529-3 DU | B35VJ5 | Total/NA | Water | 300.0 | |

General Chemistry

Analysis Batch: 5013

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|-----------------|--------------------|-----------|--------|--------|------------|
| 300-3529-1 | B35VJ4 | Total/NA | Water | 7196A | |
| 300-3529-2 | B35VJ9 | Total/NA | Water | 7196A | |
| MB 300-5013/3 | Method Blank | Total/NA | Water | 7196A | |
| LCS 300-5013/4 | Lab Control Sample | Total/NA | Water | 7196A | |
| 300-3526-A-1 MS | Matrix Spike | Total/NA | Water | 7196A | |
| 300-3526-A-1 DU | Duplicate | Total/NA | Water | 7196A | |

7/29/2016

Lab Chronicle

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-042

TestAmerica Job ID: 300-3529-1
SDG: WC1279

Client Sample ID: B35VJ4

Date Collected: 07/20/16 11:08

Date Received: 07/20/16 14:50

Lab Sample ID: 300-3529-1

Matrix: Water

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|------------|----------------|--------------|--------------|----------------------|---------|---------|
| Total/NA | Analysis | 7196A | | 1 | | | 5013 | 07/20/16 18:16 | RLC | TAL RCH |

Client Sample ID: B35VJ9

Date Collected: 07/20/16 11:08

Date Received: 07/20/16 14:50

Lab Sample ID: 300-3529-2

Matrix: Water

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|------------|----------------|--------------|--------------|----------------------|---------|---------|
| Total/NA | Analysis | 7196A | | 1 | | | 5013 | 07/20/16 18:16 | RLC | TAL RCH |

Client Sample ID: B35VJ5

Date Collected: 07/20/16 11:08

Date Received: 07/20/16 14:50

Lab Sample ID: 300-3529-3

Matrix: Water

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|------------|----------------|--------------|--------------|----------------------|---------|---------|
| Total/NA | Analysis | 300.0 | | 2 | | | 4964 | 07/20/16 18:58 | CPM | TAL RCH |
| Total/NA | Analysis | 300.0 | | 2 | | | 4965 | 07/20/16 18:58 | CPM | TAL RCH |
| Total/NA | Analysis | 300.0 | | 20 | | | 4965 | 07/20/16 22:16 | CPM | TAL RCH |

Client Sample ID: Method Blank

Date Collected: N/A

Date Received: N/A

Lab Sample ID: MB 300-4964/5

Matrix: Water

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|------------|----------------|--------------|--------------|----------------------|---------|---------|
| Total/NA | Analysis | 300.0 | | 1 | | | 4964 | 07/20/16 18:28 | CPM | TAL RCH |

Client Sample ID: Method Blank

Date Collected: N/A

Date Received: N/A

Lab Sample ID: MB 300-4965/5

Matrix: Water

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|------------|----------------|--------------|--------------|----------------------|---------|---------|
| Total/NA | Analysis | 300.0 | | 1 | | | 4965 | 07/20/16 18:28 | CPM | TAL RCH |

Client Sample ID: Method Blank

Date Collected: N/A

Date Received: N/A

Lab Sample ID: MB 300-5013/3

Matrix: Water

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|------------|----------------|--------------|--------------|----------------------|---------|---------|
| Total/NA | Analysis | 7196A | | 1 | | | 5013 | 07/20/16 18:07 | RLC | TAL RCH |

TestAmerica Richland

Lab Chronicle

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-042

TestAmerica Job ID: 300-3529-1
SDG: WC1279

Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 300-4964/6

Date Collected: N/A

Matrix: Water

Date Received: N/A

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|------------|----------------|--------------|--------------|----------------------|---------|---------|
| Total/NA | Analysis | 300.0 | | 1 | | | 4964 | 07/20/16 18:43 | CPM | TAL RCH |

Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 300-4965/6

Date Collected: N/A

Matrix: Water

Date Received: N/A

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|------------|----------------|--------------|--------------|----------------------|---------|---------|
| Total/NA | Analysis | 300.0 | | 1 | | | 4965 | 07/20/16 18:43 | CPM | TAL RCH |

Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 300-5013/4

Date Collected: N/A

Matrix: Water

Date Received: N/A

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|------------|----------------|--------------|--------------|----------------------|---------|---------|
| Total/NA | Analysis | 7196A | | 1 | | | 5013 | 07/20/16 18:07 | RLC | TAL RCH |

Client Sample ID: Matrix Spike

Lab Sample ID: 300-3526-A-1 MS

Date Collected: 07/20/16 11:58

Matrix: Water

Date Received: 07/20/16 14:50

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|------------|----------------|--------------|--------------|----------------------|---------|---------|
| Total/NA | Analysis | 7196A | | 1 | | | 5013 | 07/20/16 18:07 | RLC | TAL RCH |

Client Sample ID: B35VJ5

Lab Sample ID: 300-3529-3 MS

Date Collected: 07/20/16 11:08

Matrix: Water

Date Received: 07/20/16 14:50

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|------------|----------------|--------------|--------------|----------------------|---------|---------|
| Total/NA | Analysis | 300.0 | | 2 | | | 4964 | 07/20/16 19:13 | CPM | TAL RCH |
| Total/NA | Analysis | 300.0 | | 2 | | | 4965 | 07/20/16 19:13 | CPM | TAL RCH |
| Total/NA | Analysis | 300.0 | | 20 | | | 4965 | 07/20/16 22:31 | CPM | TAL RCH |

Laboratory References:

TAL RCH = TestAmerica Richland, 2800 George Washington Way, Richland, WA 99352, TEL (509)375-3131

Method Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-042

TestAmerica Job ID: 300-3529-1
SDG: WC1279

| Method | Method Description | Protocol | Laboratory |
|--------|----------------------------|----------|------------|
| 300.0 | Anions, Ion Chromatography | MCAWW | TAL RCH |
| 7196A | Chromium, Hexavalent | SW846 | TAL RCH |

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL RCH = TestAmerica Richland, 2800 George Washington Way, Richland, WA 99352, TEL (509)375-3131

7/29/2016

Sample Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: F16-042

TestAmerica Job ID: 300-3529-1
SDG: WC1279

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---------------|------------------|--------|----------------|----------------|
| 300-3529-1 | B35VJ4 | Water | 07/20/16 11:08 | 07/20/16 14:50 |
| 300-3529-2 | B35VJ9 | Water | 07/20/16 11:08 | 07/20/16 14:50 |
| 300-3529-3 | B35VJ5 | Water | 07/20/16 11:08 | 07/20/16 14:50 |

Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 300-3529-1

SDG Number: WC1279

Login Number: 3529

List Number: 1

Creator: Bock, Julie A

List Source: TestAmerica Richland

| Question | Answer | Comment |
|--|--------|---------|
| Radioactivity wasn't checked or is \leq background as measured by a survey meter. | True | |
| The cooler's custody seal, if present, is intact. | N/A | |
| Sample custody seals, if present, are intact. | True | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | True | |
| There are no discrepancies between the containers received and the COC. | True | |
| Samples are received within Holding Time (excluding tests with immediate HTs) | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| Sample Preservation Verified. | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4"). | N/A | |
| Multiphasic samples are not present. | N/A | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |